The Dimensional Structure of Benefit Finding in Multiple Sclerosis (MS) and Relations with Positive and Negative Adjustment: A Longitudinal Study

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Abstract

Benefit finding is a meaning making construct that has been shown to be related to adjustment in people with MS and their carers. This study investigated the dimensions, stability and potency of benefit finding in predicting adjustment over a 12 month interval using a newly developed Benefit Finding in Multiple Sclerosis Scale (BFiMSS). Usable data from 388 persons with MS and 232 carers was obtained from questionnaires completed at Time 1 and 12 months later (Time 2). Factor analysis of the BFiMSS revealed seven psychometrically sound factors: Compassion/Empathy, Spiritual Growth, Mindfulness, Family Relations Growth, Life Style Gains, Personal Growth, New Opportunities. BFiMSS total and factors showed satisfactory internal and retest reliability coefficients, and convergent, criterion and external validity. Results of regression analyses indicated that the Time 1 BFiMSS factors accounted for significant amounts of variance in each of the Time 2 adjustment outcomes (positive states of mind, positive affect, anxiety, depression) after controlling for Time 1 adjustment, and relevant demographic and illness variables. Findings delineate the dimensional structure of benefit finding in MS, the differential links between benefit finding dimensions and adjustment and the temporal unfolding of benefit finding in chronic illness**.**

Some studies show that benefit finding is an important predictor of concurrent and future adjustment in people suffering from chronic and or life threatening illnesses (Affleck, Tennen, Croog, & Levine, 1987; Bower et al., 2005; Carver & Antoni, 2004; Pakenham, 2005a; Thompson, 1991). Despite the increased interest in benefit finding in the context of chronic illness, the research in this field is at an early stage, particularly with respect to multiple sclerosis (MS). There are many gaps in the literature regarding the dimensional structure, external validity and temporal stability of benefit finding in MS, and the potency of benefit finding in predicting adjustment outcomes in the medium term. Hence, the purpose of the present study was to investigate the dimensions, stability and validity of a MS benefit finding inventory derived largely from qualitative data using a longitudinal design.

MS is one of the most common acquired neurological diseases in young adults. The disease course and clinical symptoms of MS vary widely and affect sensory-tactile, motor, visual, bladder, sexual and bowel functioning. The onset of MS is most often in young adulthood, the aetiology is unknown, and there is currently no cure, only symptomatic relief. MS produces profound psychosocial disruptions in areas such as employment, sexual functioning, family life and activities of daily living. The difficulties in adjusting to such a debilitating illness are reflected in findings that show people with MS have a higher prevalence of emotional disorders relative to other patient groups with comparable degrees of physical disability (for further details see Rao, Huber, & Bornstein, 1992). In particular, depression and anxiety disorders are prominent in samples of people with MS. Depression has been found to affect 27 to 47% of people with MS (Chwastiak et al., 2002; Patten, Beck, Williams, Barbui, & Metz, 2003), while anxiety disorders have been found to affect 16 to 48% (Nicholl, Lincoln, Francis, & Stephan, 2001; Schiaffino, Shawaryn, & Blum, 1998). In addition, people with MS have been shown to report lower quality of life than community comparison groups (McCabe & McKern, 2002). Many of the adjustment difficulties reported by persons with MS stem from significant losses, an untimely confrontation with mortality and disability, thwarted life goals and disrupted self-definition resulting in existential tensions and meaninglessness. Searching for and identifying benefits in the illness experience may help to restore meaningfulness, purpose, order and a redefined self.

Benefit finding is defined as the identification of benefits in adversity (Tennen & Affleck, 2002) and has been used interchangeably with a variety of terms including "posttraumatic growth" and "stress-related growth". Benefit finding has been conceptualised as a meaning making construct (Janoff-Bulman & Yopyk, 2004). According to the Assumptive Worlds theory (Janoff Bulman & Yopyk, 2004), significant negative life events such as illness, can shatter fundamental assumptions about the world and self, triggering a state of meaninglessness with associated distress. Consistent with this theory, two cognitive processes contribute to the rebuilding of meaning in the face of the new illness realities: making sense of the illness through developing explanations for the adversity (sense making) and finding benefits in the illness (benefit finding). The latter involves re-evaluating adverse illness demands positively, thereby mitigating their negative impact, and protecting self worth (Taylor, 1983).

Other theorists have also proposed a central role for benefit finding as a meaning making process in adapting to significant negative life events. For example, Tedeschi and Calhoun (2004) discuss benefit finding in the context of posttraumatic growth, Gillies and Neimeyer (2006) posited benefit finding as one of three meaning reconstruction processes in response to significant loss, and drawing on a stress and coping framework, Park and Folkman (1997) conceptualise benefit finding as a cognitive reappraisal coping strategy belonging to the meaning-based category of coping processes.

People with MS have been shown to report a wide range of benefits (Pakenham, 2007) and their benefit finding has been shown to be related to meaning-based coping strategies (Pakenham, 2006) and to have direct effects on positive adjustment outcomes (dyadic adjustment, positive affect and life satisfaction) (Pakenham, 2005a). A similar pattern of findings has emerged in research on carers of people with MS (Pakenham, 2005b). These findings are consistent with conceptualisations of benefit finding as a meaning-based coping process that is more strongly linked to sustaining positive psychological states than to the regulation of distress (Folkman & Moskowitz, 2000; Lazarus, 1999). However, findings regarding the relations between benefit finding and distress are less consistent. Mohr et al. (1999) found benefit finding to be positively correlated with higher anxiety and anger and unrelated to depression, whereas Pakenham (2005a) found that correlations between benefit finding and anxiety and depression were non-significant. The explanation for this variation in findings was the

differences in measurement and sampling (Pakenham, 2005a). Correlations between MS carer benefit finding and carer global distress were also found to be non-significant (Pakenham, 2005b). The benefit finding of people with MS has also been shown to be correlated with the benefit finding of their carers (Pakenham, 2005b).

To date, the only published measure of benefit finding in MS is Mohr et al's (1999) 19-item Benefit Finding Scale (BFS). Mohr et al (1999) produced 67 statements that were factor analyzed and 3 factors were revealed, one of which was labelled benefit finding (19 items) and is referred to as the BFS. Given that the BFS was not developed from a targeted systematic investigation of benefit finding in MS, subsequent research collected comprehensive qualitative data on benefit finding in MS (Pakenham, 2007). This research showed that several areas of benefit finding were not represented by items in the BFS. Furthermore, this qualitative data also suggested benefit finding themes that may be unique to MS or chronic illness that are not well reflected in widely used measures of benefit finding (e.g., health and lifestyle gains). Hence, the present study investigates the utility of a benefit finding scale derived largely from this qualitative data called the Benefit Finding in MS scale (BFiMSS).

There are conflicting findings regarding the dimensional structure of benefit finding. Factor analytic studies that have examined multi-item benefit finding measures using community samples have shown these measures to have a single factor (Park, Cohen, & Murch, 1996) and multiple factors (McMillen & Fisher, 1998; Tedeschi & Calhoun, 1996). The dimensional structure of benefit finding in chronically ill populations has not been clearly delineated, although the research pertaining to this issue is more advanced in the cancer field. Cancer researchers have tended to use the Post Traumatic Growth Inventory (Tedeschi & Calhoun, 1996) which has 5 subscales (new possibilities, relating to others, personal strength, appreciation of life and spiritual change) (e.g., Cordova, Cunningham, Carlson, & Andrykowski, 2001), whereas others have used scales designed for other populations and modified them for cancer patients (Antoni et al., 2001; Carver & Antoni, 2004; Tomich & Helgeson, 2004). Factor analyses performed on these modified scales suggest that benefit finding may be represented by multiple dimensions or a single factor; researchers have tended to use the single dimension (e.g., Tomich & Helgeson, 2004). Only one published study has examined the dimensionality of benefit finding in MS.

Pakenham (2005a) factor analysed the BFS and found satisfactory one and two factor solutions (Personal Growth and Family Relations Growth). Part of the difficulty in unravelling the dimensionality of benefit finding in chronic illness is that researchers have tended to rely on benefit finding scales that are not context specific without taking into account emerging evidence indicating that the nature of benefit finding may vary with respect to the type of adversity being faced. For example, qualitative studies of people with HIV/AIDS (Siegel & Schrimshaw, 2000) and MS (Pakenham, 2007) show a wide range of benefit finding themes, some of which are not reflected in benefit finding scales that are not context specific. If benefit finding in the context of chronic illness is multidimensional, benefits may be more pronounced in some domains than others, which could be differentially related to adjustment outcomes. Preliminary support for this proposal comes from a study of people with MS which found that the BFS Family Relations Growth factor emerged as a strong predictor of positive affect, life satisfaction and dyadic adjustment, whereas Personal Growth only predicted positive affect. Delineating the dimensions of benefit finding for specific populations may have important treatment implications. For example, Bower and Segerstrom (2004) suggest that the success of cognitive-behavioural stress management interventions in promoting benefit finding in cancer patients may be due to the various treatment components having differential impacts on benefit finding domains. This proposal is supported by evidence indicating that stress and coping predictors are differentially related to benefit finding dimensions in cancer patients (Bellizzi & Blank, 2006).

The validity of self reported benefit finding is an important yet neglected area of inquiry (Park & Helgeson, 2006)**.** That is, to what extent are the positive changes that people report in adverse circumstances real and can be confirmed by observers, or to what extent are they imagined and cannot be corroborated by others? Indeed, Taylor (1983) suggests that when faced with adversity people may create cognitive distortions or illusions that allow them to view themselves and their experience in a more positive light. Few studies have validated self reported benefit finding by obtaining corroborative data from significant others. However, it is acknowledged that not all forms of growth are visible to others. The two published studies that have obtained this external validation data show that levels of agreement between benefit finding scores of respondents and those of significant others varies: .21

students (students, Park et al., 1996), .51 breast cancer patients (Weiss, 2002), and .06 to .47 spinal cord injury patients (McMillen & Cook, 2003). A related problem is the potential for benefit finding to be confounded with social desirability response bias given that many of the benefits included in inventories appear to be very desirable (Tomich & Helgeson, 2004). No published studies have examined relations between benefit finding and social desirability response bias in the chronic illness field; however, in student and community samples scores on the posttraumatic growth and stress-related growth inventories have been shown to be unrelated to social desirability (Park et al., 1996; Tedeschi & Calhoun, 1996; Weintraub, Rothrock, Johnsen, & Lutgendorf, 2006).

A final shortcoming of prior benefit finding research in the chronic illness field generally and in the MS area specifically is the lack of studies that have examined the temporal stability of benefit finding and the potency of benefit finding in predicting outcomes over the medium term. Regarding temporal stability, to date only one published study on benefit finding in MS has examined retest reliability of benefit finding. In a small sample (n=67) Evers et al. (2001) showed that a 6-item benefit finding scale had a .68 retest coefficient over a 12 month interval. Retest reliability coefficients for the posttraumatic growth inventory subscales have ranged from .37 to .74 over 2 months (Tedeschi & Calhoun, 1996) and the retest coefficients for the stress-related growth inventory total score were .81 over 2 weeks and .59 over 6 months (Park et al., 1996). Although variable, these results show that in student populations, people tend to score on positive change in the same direction over short periods of time, however, data on whether the magnitude of scores change over time is not available. Bower et al. (2005) showed that positive meaning decreased over a mean interval of 2.8 years but did not report retest correlations. With respect to the potency of benefit finding in predicting adjustment overtime, in the cancer field initial benefit finding has been shown to be unrelated to distress a year later (Sears, Stanton, & Danoff Burg, 2003), associated with elevated distress 9 months later (Tomich & Helgeson, 2004), related to lower distress and depression 4 to 7 years later (Carver & Antoni, 2004), and linked to greater positive affect 1 to 4 years later (Bower et al., 2005).

The first aim of the present study is to examine the dimensional structure of the BFiMSS. The second aim is to investigate the BFiMSS factors with respect to reliability, temporal (retest) stability,

external and convergent validatity and associations with social desirability. The third aim is to examine relations between the benefit finding factors and adjustment outcomes across a 12 month interval. Consistent with findings of prior research (reviewed above) and theoretical propositions, it is predicted that benefit finding will be more strongly related to positive psychological adjustment outcomes than with distress.

Method

The present research reports on data collected from a larger longitudinal study designed to examine coping processes in adaptation to MS and caregiving. This study utilises demographic, illness, benefit finding and adjustment data collected from persons with MS at Time 1, and data on meaningfulness, social desirability, benefit finding and adjustment collected 12 months later, Time 2.

Participants and Recruitment Procedure

Participants were 408 persons with MS and 232 carers recruited through the MS Society of Queensland, Australia. The larger research project received ethical clearance through the University of Queensland. A total of 1,570 members of the MS Society were sent an information sheet, a return addressed envelope and two questionnaires (one each for the care-recipient and carer). Twenty eight envelopes were returned because of changes in address. Twenty-five persons with MS indicated that they could not participate because of illness, a changed diagnosis or disability. A total of 440 persons with MS returned questionnaires yielding a 29% response rate. Thirty-two questionnaires were excluded because of excessive missing data (n = 408). Twenty persons with MS were omitted because of evidence of cognitive impairment (see below) leaving a total of 388 persons with MS. Within these, there were very small amounts of missing data consisting of occasional missed items: maximum likelihood estimates were imputed for these missing values. A total of 252 carers returned questionnaires. Hence, over half (57%) of the people with MS who completed questionnaires also had a carer who completed a questionnaire. Twenty returned carer questionnaires were excluded because of excessive missing data leaving a total sample of 232 carers. A total of 296 persons with MS and 140 carers completed questionnaires at Time 2, yielding 27% and 40% attrition rates respectively.

The mean age of persons with MS was 49.33 years (*SD*= 11.31; range = 21–80) and 82% (*n* = 313) were females (18% males, *n* = 68). A few (6%) participants reported having only a primary school education, over a third (36%) had completed 10 years of education, 17% 12 years of education, and 36% had a university/trade education. Over one third (35%) were employed, 38% received a pension (e.g., disability benefit), 6% were unemployed and 20% were retired. Most (63%) participants were married or with partner. MS diagnosis was established by asking participants to indicate whether a physician had given a MS diagnosis.

Measures

Mayo-Portland Adaptability Inventory (MPAI). The MPAI (Malec & Thompson, 1994) assesses impairment from acquired brain injury. The cognition subscale of the MPAI was used as a screen at Time 1 to identify severely cognitively impaired respondents who were likely to provide unreliable self-report. The criteria used for cognitive impairment was a score two or more standard deviations above the mean, and a score of 3 (indicating severe impairment) on 2 or more of the 6 items (communication, memory, attention, problem-solving, visuospatial abilities and common knowledge). Each item is rated on a 4-point scale.

Demographics. Information on age, gender, employment, education, marital status, and religious-spiritual belief was obtained by forced choice questions at Time 1. Regarding the latter, participants were asked to indicate whether they had a religious or spiritual belief. If a respondent indicated "yes" they were asked to identify their religious-spiritual belief from a list or to specify a particular religion if it was not listed. Just over half (55%, *n* = 215) indicated that they had a religious or spiritual belief and almost all of these participants identified their religious-spiritual belief. Only the dichotomous religious-spiritual belief variable was used in subsequent analyses.

Illness. At Time 1 details were obtained concerning the number of months since diagnosis and symptom onset and course of the illness. The mean number of years since diagnosis was 10.56 (*SD* = 8.32; range = 1 month – 41 years). Most (67%) identified their disease course as relapse-remitting (33% chronic progressive). An open-ended question asked for a description of current MS symptoms. Responses were coded, and the number of symptoms calculated (*M* = 3.93; *SD* = 2.45; range = 0 – 16). Disability was measured at Time 1 by the Activities of Daily Living (ADL) Self-Care Scale (Gulick, 1987) for persons with MS. Two items were excluded because they were considered to be confounded with social support

(*Exchange loving glances with someone special*, *Confide in someone*). Respondents are asked to rate how frequently they perform various activities (e.g., cutting up food, writing clearly). Items are rated on a 6-point scale (0 *Never* to 5 *Always*) with higher scores indicating higher ADL self-care (Cronbach's alpha = .93).

Social desirability. Social desirability as a response tendency was assessed at Time 2 with the widely used 13-item short form of the Marlowe-Crown Social Desirability Scale (Crowne & Marlowe, 1960) which has been shown to be a psychometrically sound substitute for the 33-item parent instrument (Reynolds, 1982) (Cronbach's alpha = .66). Participants were required to endorse each item as either 'true' or 'false'. Items were summed and a mean score was calculated and used in analyses with higher scores reflecting higher social desirability response bias.

Meaningfulness. Meaningfulness was assessed at Time 2 with the 8-item meaningfulness subscale of Antonovsky's (1987) Sense of Coherence scale (SOC-M), which has been validated as a general measure of meaning in life (Reker & Fry, 2003). It was used in the present study to examine convergent validity of the BFiMSS (Cronbach's alpha = .87). Items are rated on an 8-point scale. After reverse scoring 5 items, ratings were summed and a mean score was calculated such that higher scores indicated more meaningfulness.

Adjustment. All adjustment outcomes were assessed at Times 1 and 2. The Positive States of Mind Scale (PSOM) (Horowitz, Adler, & Kegeles, 1988) assesses the extent to which a person has experienced in the past week each of six positive cognitive and interpersonal states (focused attention, productivity, responsible caretaking, restful repose, sensuous nonsexual pleasure and sharing). Items are rated on a 4-point scale (1 *unable to have it* to 4 *have it well*). The word *hot* was excluded from the phrase *…lounging in a hot bath* in the sensuous nonsexual pleasure item because many people with MS suffer heat sensitivity (Cronbach's alpha .85 Times 1 and 2). The PSOM has demonstrated very good construct and predictive validity in previous research (Adler, Horowitz, Garcia, & Moyer, 1998).

Positive affect was measured by a modified version of the Bradburn Affect Balance Scale (Bradburn, 1969). An additional 3 items were added to Bradburn's (1969) 5 positive affect items (*Cheerful*, *Inspired*, *Satisfied*). Participants rated the extent to which they felt each of the eight positive states during the past few weeks (1 *not at all* to 5 *very often*). Item ratings were summed with higher scores indicating greater positive affect (Time 1 α = .92, Time 2 α = .94).

Four items were selected from each of the Symptom Checklist-90 (Derogatis & Cleary, 1977) depression and anxiety subscales. Items were selected that were not confounded with MS symptoms (e.g.,

fatigue, weakness) and instead tapped the emotional and cognitive dimensions of depression and anxiety. Items for each subscale were summed with higher scores indicating greater distress (depression α = .85; anxiety α = .79).

Carer Rating of Care Recipient Benefit Finding and Overall Positive Change. An 11-item scale was developed to assess carers' perceptions of their care recipient's benefit finding at Times 1 and 2. The following orienting instruction was provided *Sometimes people who have been diagnosed with an illness find something positive about the experience. Please rate how much you think ... has experienced something positive as a result of having MS.* The stem for each item was *As a result of … having MS he/she …* Each item described benefit finding in a particular area including personal growth (*…has grown as a person*), new opportunities (*…has had opportunities to do things that he/she values*). Each item was rated on a 3-point scale (1 *Not at all* to 3 *A great deal*). A factor analysis of the Time 1 data showed that all items loaded >.56 on a single factor explaining 55% of the variance (α Time 1 = .91, Time 2 = .90). Carers were also asked if they knew the care recipient before he/she received his/her MS diagnosis. A total of 89% of carers indicated *yes;* these carers were then asked *overall, to what extent do you think … has changed in positive ways as a result of having MS?* Overall change was rated on a 5-point scale: 1 *No positive change*, 3 *Some positive change*, 5 *Considerable positive change*.

Benefit Finding. The 67-item BFiMSS was administered at Times 1 and 2, and consisted of 18 items from the Mohr et al. (1999) benefit finding scale and 49 items developed from qualitative data. In an earlier study, qualitative data on benefit finding was obtained from 130 persons with MS (Pakenham, 2007). The data was content analysed and provided the basis for item generation for the BFiMSS (Pakenham, 2007). A total of 49 benefit finding statements were generated from the qualitative data and were included in the BFiMSS. The following orienting instruction was used: *Sometimes people who have an illness find something positive about the experience. Please rate how much you have experienced each item below as a result of having MS.* Items were rated on a 3-point scale (1 *Not at all* to 3 *A great deal*).

Results

Factor analyses were used to examine the dimensional structure of the BFiMSS followed by analyses that investigated the psychometric properties of the BFiMSS factors including internal and retest reliability, external, convergent and criterion validity and relations with social desirability. Correlations were used to examine relations between the BFiMSS factors and demographic, illness and

adjustment variables. Finally, hierarchical regression analyses examined relations between the BFiMSS factors and the Time 2 adjustment outcomes (PSOM, positive affect, anxiety and depression) after controlling for Time 1 adjustment and relevant covariates.

Time 2 responders and non-responders were compared on all Time 1 demographic, illness, adjustment and benefit finding variables. The only variables on which the two groups differed were ADL self care $F(1,386) = 21.72$, $p<.01$, PSOM $F(1,386) = 7.172$, $p<.01$, and time since diagnosis $F(1,369) = 6.33$, $p = .01$. Time 2 non-responders reported lower ADL self care ($M = 41.28$, $SD = 16.16$), lower PSOM ($M = 11.74$, $SD = 4.54$), and longer illness duration ($M = 147.90$ months, $SD = 110.47$) than Time 2 responders (ADL $M = 49.43$, $SD = 14.91$; PSOM M = 13.03, SD = 4.09; illness duration $M = 118.82$, $SD = 94.50$).

Factor Analyses

The 67 BFiMSS items were subjected to a principle-components (PC) factor analysis using both oblique and varimax rotations. The overall Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was excellent (.94). These analyses yielded 13 factors with eigenvalues greater than 1.0 and a scree test which suggested five or seven factors. Although 4 to 9 factor solutions were explored, the 7 factor solution produced the most interpretable set of factors. However, for most solutions 22 items had low commonalities, split loadings and/or loadings <.40 and were discarded. A further two items were discarded: one item referred to benefits for others rather than self (*Those close to me have made beneficial changes in their lives*) and the item *…become closer to my partner/significant other* had considerable missing data because only those who were married or had a partner completed this item. The 43-items were subjected to PC factor analysis using orthogonal and oblique positions which produced 9 factors with eigenvalues greater than 1.0, and a scree test that suggested four or seven factors (KMO = .93). Although both varimax and oblique rotations produced identical 7 factor solutions, the oblique (direct oblimin) is reported because several correlations among the factors were >.30. The seven rotated factors accounted for 56.83% of the total variance. All 43 items met item retention criteria: ≥.40 factor loadings, ≥.20 difference between an item's loading on the primary factor and loadings on other factors, and a rational and interpretable connection with the other items in the factor. Table 1 presents the eigenvalues, percentage of variance for each factor and the factor loadings

for the 43 items. The first factor reflected Compassion/Empathy, whereas the second factor appeared to tap spiritual growth. The third factor reflected mindfulness. The central theme of the 6 items on the fourth factor mirrored new opportunities. The fifth factor reflected changes to life style and the sixth factor reflected family relations growth. The final factor consisted of 7 items that tapped personal growth. The 43 Time 1 BFiMSS items were subjected to further factor analysis to examine a unidimensional structure. The single factor accounted for 30.54% of the variance and all but three items loaded >.40 on the single factor: items 5, 28 and 2 had loadings of .29, .20 and .18, respectively. All 43 items were retained to yield the total BFiMSS score. A PC factor analysis using oblique rotation performed on the Time 2 BFiMSS 43 items (KMO = .92) produced an identical 7 factor solution which explained 57.75% of the variance.

Descriptive and Psychometric Data. Mean scores were calculated for each factor. All 43 items were included in the calculation of the total BFiMSS score. The removal of the three items that loaded <.40 on the single factor (items 5, 28, 2) did not alter the Cronbach's alpha for the total BFiMSS. All factor scores were normally distributed. Table 2 summarises the means, standard deviations and Cronbach's alpha reliabilities. The factor with the highest mean at both Times 1 and 2 was Life Style Gains and the factor with the lowest mean at both time points was Spiritual Growth. All internal reliability coefficients were >.75. Social desirability was weakly correlated with five of the Time 1 BFiMSS factors (Compassion/Empathy $r(281) = .17$, $p<.05$; Mindfulness $r(281) = .28$, $p<.01$; New Opportunities $r(280) = .14$, $p<.05$; Life Style Gains $r(281) = .17$, $p<.05$; Personal Growth $r(281) = .13$, $p<.05$) and the total BFiMSS score $r(281) = .19$, $p<.01$.

Correlations among the BFiMSS factors are presented in Table 2. The correlations among the seven factors were all positive and statistically significant ranging from .33 to .67 (mean inter-correlation = .52). A measure of the average shared variance was obtained by calculating the mean of the squared correlations, which indicated that the shared variance was 25%. The correlations between each of the seven factors and the total BFiMSS score ranged from .69 to .82.

Paired *T*-tests and correlations were conducted to examine the stability of the BFiMSS factors over the 12 month interval. Retest coefficients and *T*-test values are summarised in Table 2. Retest correlations showed that each Time 1 BFiMSS factor and the Time 1 total BFiMSS score was

significantly positively correlated with its respective Time 2 BFiMSS factor and total BFiMSS score. Paired *T*-tests showed that the total BFiMSS score and each factor score significantly decreased from Time 1 to Time 2 except for Mindfulness and New Opportunities.

Relationships between BFiMSS Factors and Both Demographic and Illness Variables

To determine whether the BFiMSS factors varied as a function of demographics (age, gender, marital status, education, employment and religious-spiritual belief), and illness variables (Time 1 ADL, MS symptoms, time since diagnosis, time since first symptoms and course [relapse-remitting vs. chronic progressive]), correlations were performed on continuous or dichotomous data (Spearman's correlations) and ANOVAs were used for variables with more than two categories (employment and education). Given the large number of associations examined, $p<.01$ alpha level was used. Regarding the illness variables, time since diagnosis was positively correlated with Compassion/Empathy $r(371) = .16$, $p<.01$, Mindfulness $r(371) = .16$, $p<.01$, Personal Growth $r(371) = .15$, $p<.01$ and the BFiMSS total score $r(371) = .16$, $p<.01$and weakly correlated with Spiritual Growth $r(371) = .10$, $p<.05$, Life style Gains $r(371) = .11$, $p<.05$, and New Opportunities $r(371) = .12$, $p<.05$. That is, greater illness duration was weakly associated with higher benefit finding in most areas.

Given the weak, but significant correlations between time since diagnosis and the BFiMSS factors, further explorations of these relationships were performed. First, the interaction between time since diagnosis and each BFiMSS factor in the prediction of each adjustment variable was tested. All interactions were found to be non-significant. To assess for a possible discontinuous impact of time since diagnosis, the variable was transformed based on a quartile split, and this four category variable used to form interactions with each BFiMSS factor, onto which adjustment was regressed. These interactions were not significant. The two sets of interaction analyses suggest that the there is not an interactive effect between time since diagnosis and BFiMSS in the prediction of adjustment. The final set of analyses examined whether the correlations between time since diagnosis and the BFiMSS factors varied as a function of increasing time. Examination of the partial correlations between time since diagnosis and each factor, controlling for age, religious-spiritual belief and social desirability, revealed that those respondents in the 4^{th} quartile, that is, those who had the longest time since diagnosis (in excess of 15 years) exhibited significant ($p < .05$) moderate correlations between time since diagnosis

and each BFiMSS factor (average r = .41; range = .38 to .48) while for all other quartiles the correlations were generally weak and none were significant (average r = -.03; range = -.19 to .14). This suggests that benefits may start to accrue more rapidly as time progresses, but not until a very long time period has passed.

With respect to demographics, the BFiMSS factors were unrelated to all demographics except age and religious-spiritual belief (yes = 1, no = 2). Higher age was significantly related to greater Mindfulness $r(380) = .22$, $p<.01$ and weakly related to higher scores on the Compassion/Empathy $r(380) = .10$, $p<.05$ factor, and the BFiMSS total score $r(380) = .11$, $p<.05$ and compared to those who did not report a religious-spiritual belief, those who did report such a belief scored significantly higher on all factors and total BFiMSS (Spearman's correlations ranged from .12, $p<.05$ to 61, $p<.01$), except the Mindfulness factor.

Relations between BFiMSS factors and meaningfulness and carer ratings of change. To examine convergent validity of the BFiMSS factors, partial correlations were performed on the BFiMSS factors and SOC-M, controlling for age, religious-spiritual belief, time since diagnosis and social desirability. The results of these correlations are summarised in Table 3. The SOC-M was significantly positively correlated with all of the BFiMSS factors, except for Family Relations Growth, and the total BFiMSS score. To further examine the validity of the BFiMSS factors, partial correlations were performed between each of the factors and Times 1 and 2 carer ratings of care recipient benefit finding and Time 1 carer ratings of the care recipient's overall positive change as a result of having MS. These analyses were performed only on carers who knew the care recipient prior to MS. Carer ratings of benefit finding and overall change were significantly positively correlated with all factors and the total BFiMSS score.

Correlations between BFiMSS Factors and Time 1Adjustment

Partial correlations between the Time 1 BFiMSS factors and Times 1 adjustment outcomes, controlling for age, religious belief, time since diagnosis, and Time 2 social desirability are summarised in Table 3. Results showed that mindfulness was inversely related to, and Compassion/Empathy positively related to, Time 1 anxiety. The BFiMSS total score and all BFiMSS factors except Compassion/Empathy, Family Relations Growth and Life Style Gain were inversely related to Time 1

depression. The BFiMSS total score and all BFiMSS factors except Compassion/Empathy, Family Relations Growth and Spiritual Growth were inversely related to Time 1 PSOM. Finally, the BFiMSS total score and all BFiMSS factors were significantly positively correlated with Time 1 positive affect.

Hierarchical Regression Analyses of the Effects of Benefit Finding on Adjustment Outcomes

Hierarchical regression analyses were conducted to examine relations between the BFiMSS factors and Time 2 adjustment after controlling for the effects of Time 1 adjustment and relevant demographic and illness covariates. Given the moderately high correlations among the BFiMSS factors, centred scores for each factor were used in the regression analyses. Preliminary analyses showed that multicollinearity was not likely to be a threat to the stability of regression analyses because in no instance did the correlation between any two predictors approach the mean scale reliability (Campbell & Fiske, 1959), and most variance inflation factors were <10 (Chatterjee, Hadi, & Price, 1999). Time 1 adjustment was entered first, the covariates (social desirability, age, religious-spiritual belief and illness duration) were entered second, followed by the BFiMSS factors on the final step. Results of the regression analyses are summarised in Table 4. When all the variables were in the equation, significant amounts of variance in each of the dependent variables were accounted for (35 - 48%). Time 1 adjustment accounted for most of the explained variance in each dependent variable. As a block, the covariates accounted for a significant increment in anxiety (3%). After controlling for the effects of the covariates, the BFiMSS factors accounted for a significant increment in variance in all dependent variables (3 – 4%). All of the BFiMSS factors, except Mindfulness, Spiritual Growth and Personal Growth emerged as significant or marginally significant predictors of one or more dependent variables. Life Style Gains was related to lower depression and anxiety. The New Opportunities factor was related to greater positive affect and higher PSOM. Family Relations Growth was significantly associated with lower PSOM as was the Compassion/Empathy factor. The regression analyses were repeated using the total BFiMSS score instead of the factor scores. The total score accounted for significant increments in variance in depression (ΔR^2 .01, $\Delta F(1,264) = 6.00$ $p<.05$; $\beta = -.12$, $p<.05$) and anxiety (ΔR^2 .01, $\Delta F(1,264) = 4.86$ $p<.05$; $\beta = -.11$, $p<.05$).

Discussion

The first aim of this study was to investigate the dimensional structure of benefit finding in MS. Seven empirically distinct benefit finding dimensions emerged. In a prior study, family relations growth and personal growth factors also emerged from factor analyses conducted on the BFS (Pakenham, 2005a). Spiritual growth, new opportunities, compassion/empathy and life style gains domains have also appeared in other benefit finding scales (McMillen & Fisher, 1998; Tedeschi & Calhoun, 1996). What has not been apparent in other studies is the emergence of a mindfulness benefit finding domain which may be unique to MS or chronic illness generally. Mindfulness has been shown to be effective in the management of a broad range of physical and mental health problems (Kabat-Zinn, 1990), including MS symptoms (Mills & Allen, 2000).

The second aim was to investigate the BFiMSS factors with respect to reliability, temporal (retest) stability, external and convergent validity and associations with social desirability. In general, the seven BFiMSS factors and the total BFiMSS scale were shown to be psychometrically sound. All factors evidenced convergent validation with a widely used measure of meaningfulness. All internal reliabilities were highly satisfactory and retest coefficients showed that respondents tended to score in the same direction across the 12 month interval. The retest coefficients were comparable to that obtained by Evers et al. (2001) for the same time interval with five coefficients from the present study being higher. However, the magnitude of scores on the total BFiMSS and four of the factors decreased from Time 1 to Time 2. Bower et al. (2005) also found that positive meaning scores decreased over a 1 to 4 year period in long-term breast cancer survivors. A related temporal issue is the relationship between greater illness duration and higher scores on the total BFiMSS and six of the factors. However, further investigation of these associations showed the links between longer illness duration and the BFiMSS factors was strongest among participants with more than 15 years since diagnosis. These findings suggest that benefits may start to accrue more rapidly as time progresses, but substantial increases occur only after a considerable amount of time has passed. Prior research has shown that benefit finding reported by the person with MS (Evers et al., 2001; Pakenham, 2005a) and their carers (Pakenham, 2005b) increases over the duration of the illness and Powell, Ekin-Wood and Collin (2007) showed that

head injury patients 9 – 12 years post injury reported significantly higher posttraumatic growth than patients 1 – 3 years post injury.

These findings support the view that benefit finding emerges later in the adjustment process or is at least strengthened over the course of dealing with chronic stress (Janoff-Bulman & Frantz, 1997; Park, 1998). The pattern of findings regarding the temporal nature of benefit finding suggest that people with MS tend to score in a similar direction (higher or lower) over a 12 month period and that as the duration of illness increases benefit finding increases, although the strength or intensity of perceived benefits in some domains may fluctuate. The uneven temporal unfolding of benefit finding is consistent with Joseph and Linley's (2006) proposal that the search for meaning process can be triggered not only by a "seismic shattering of the assumptive world", but also through a more gradual breakdown of the assumptive world. In the context of a chronic illness, both processes are likely to occur. A seismic shattering of the assumptive world is likely to occur at key crisis points (e.g., diagnosis and acute health decline), whereas a gradual breakdown of the assumptive world is likely to fluctuate over the long haul of the illness until such time as a new meaning structures have been created that can accommodate the ongoing challenges.

Regarding external validation, carer ratings of care recipient benefit finding and overall positive change since having MS were moderately to highly correlated with all BFiMSS factors and total scale. In general, the magnitude of the correlations were consistently higher than those obtained in other studies (McMillen & Fisher, 1998; Park et al., 1996). Although promising external validation data, it should be noted that some benefit finding or growth may not be visible to others (e.g., new insights). Further, it is possible that carers' ratings reflect care recipient's talk about benefits rather than actual positive behavioural change. Alternatively, the carers' ratings may reflect their own illusions regarding the care recipient's positive changes. However, it should be noted that only those carers who knew the care recipient prior to their diagnosis of MS rated the care recipient on overall positive change.

The fact that five of the BFiMSS factors and the total BFiMSS were correlated, albeit weakly, with social desirability suggests that benefit finding may be vulnerable to a social desirability response bias within a chronic illness context and that the benefits reported may not be "true" benefits. These findings are in contrast to studies that show benefit finding is unrelated to greater social desirability in

student populations (Park et al., 1996; Tedeschi & Calhoun, 1996). It is possible that people with chronic illness conform to a culturally embedded prescription that one should adopt a "positive attitude" towards their illness (see Tennen & Affleck, 2002).

The third aim was to examine relations between the benefit finding factors and adjustment outcomes across a 12 month interval. Contrary to the prediction that benefit finding would be more strongly related to positive psychological adjustment outcomes than to distress, the amounts of variance in anxiety and depression explained by the BFiMSS were similar to the amounts of variance accounted for in the positive outcomes. Greater Life Style Gains predicted lower depression and anxiety. Notably other studies of benefit finding in MS have not examined the benefit finding dimensions of life style gain. Making positive changes to life style seems to be particularly important in regulating distress.

Regarding the predictors of positive adjustment outcomes, New Opportunities was a strong positive predictor of Time 2 positive affect, whereas Family Relations Growth emerged as a weak inverse predictor of PSOM. The latter association suggests that once the stable enduring aspects of positive states of mind are partialled out, Family Relations Growth is associated with lower PSOM over the 12 month interval. It would appear that changes in family relationships may come at a cost of lower positive interpersonal and cognitive states. Changes in relationships, although beneficial, can produce tension and thereby erode well being. Another important finding from the regression analyses is the fact that the BFiMSS factors as a block accounted for significant increments in each of the adjustment domains, whereas the BFiMSS total explained significant amounts of variance in only the two distress domains. This finding together with those mentioned above, underscore the importance of examining the dimensions of benefit finding rather than 'global' benefit finding within the chronic illness field.

Compared to those who did not report a religious-spiritual belief, those who reported such a belief had higher scores on the total BFiMSS and all factors. Other studies have also found benefit finding to be related to religious-spiritual beliefs (Cadell, Regehr, & Hemsworth, 2003; Davis, Nolen-Hoeksema, & Larson, 1998).

Regarding practice implications, although practitioners are cautioned against directly promoting benefit finding in patients for fear of trivialising their suffering, directed writing about benefits leads to positive health outcomes in cancer patients (Stanton et al., 2002) and college students (King & Miner,

2000). Cognitive-behavioural stress management interventions have also been shown to increase benefit finding in women with breast cancer (Antoni et al., 2001). Meaning making interventions primarily grounded in existential frameworks have been shown to be effective in promoting health outcomes in persons with cancer (Kissane et al., 2003; Lee, Cohen, Edgar, Laizner, & Gagnon, 2006), although benefit finding has not been measured as an outcome of these interventions. Based on their research findings Sears et al. (2003) suggest that it may not be enough to have people identify or report benefits, but help them make active use of their benefit information through developing coping strategies such as positive reappraisal. Following the trend towards integrated therapies, the blend of cognitive-behavioural, person-centred and existential approaches may provide the ideal mix of strategies for bolstering meaning reconstruction processes such as benefit finding.

The study is limited by the use of a non-random sample and a modest response rate which restricts the generalisability of findings and a reliance on self report data. Nevertheless, given that Time 1 adjustment was controlled for, in addition to the effects of social desirability, and relevant demographics and illness variables, the study provided a conservative test of the effects of benefit finding on adjustment. Post hoc paired *T*-tests showed no significant change in adjustment over the 12 month interval. Hence, although benefit finding explained relatively small amounts of variance in adjustment, there was relatively little systematic change in the adjustment measures to predict, which is not surprising given that participants had on average 10.56 years to adjust to their illness.

Findings from the present study make some important contributions to our understanding of benefit finding in the context of chronic illness. Findings delineate the key dimensions of benefit finding in MS, some of which may be unique to the experience of MS or chronic illness. Further research is required to identify those benefit finding dimensions that charactise all chronic illnesses and those that are specific to particular illnesses. Results support the differential links between the various benefit finding dimensions and demographics and illness factors. The potency of benefit finding in predicting adjustment over a 12 month interval after controlling for the effects of prior adjustment and covariates was confirmed. Findings indicate that while the tendency to report higher or lower benefit finding is relatively stable over a 12 month interval, the level of benefit finding in several domains decreases in the medium term, although over the long haul of chronic illness benefit finding tends to increase.

External validity data show relatively high levels of agreement between care recipient's self reported benefit finding and carers' perceptions of their care recipient's benefit finding. Finally, this study provides preliminary supportive reliability and validity data on the first published chronic illness-specific measure of benefit finding grounded in qualitative data. Such an instrument is important for theory building, across study comparisons and the development of interventions for enhancing quality of life of people with MS and other chronic illnesses.

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Table 1

Results of a Principal Components Factor Analysis of the 43 BFiMSS Items(N=388)

Item No.	Factor Label and Item	Factor Loadings						
		1	2	3	4	5	6	7
	Compassion/Empathy							
30	… become more respectful of others	.75						
19	… become more compassionate towards others	.76						
36	… become more accepting of others	.76						
29	… learned how to reach out and help others	.65						
3	… become more aware of the needs of others	.65						
35	… learned to communicate better with people	.60						
37	… learned that everyone has a purpose in life	.55						
34	… learned to give support and hope to others with MS	.49						
	Spiritual Growth							
1	… become more spiritual		.93					
23	… a better understanding of spiritual matters		.85					
50	My faith has been strengthened		.82					
54	… found new faith		.80					
	Mindfulness							
5	… learned to slow down			.77				
26	… learned to relax			.67				
6	… become more accepting of myself			.61				
8	… learned to take one day at a time			.59				
67	My life has become less complicated			.53				
46	… learned to be patient			.48				
	New Opportunities							
57	… developed new interests				.63			
15	New opportunities have become available which would not have otherwise occurred				.59			
62	… more time to do activities I value				.59			
44	… established a new path for my life				.57			
24	… been able to meet more people, some of whom have become good friends				.54			
65	… developed new relationships with supportive others				.54			

	Life Style Gains							
9	… re-evaluated my diet and physical activity				.66			
33	… taken more control over my health				.65			
16	… become more aware of, and in tune with my health				.63			
28	… learned more about MS				.54			
52	… become more aware of alternative treatments				.46			
27	… learned the importance of having a balanced life style				.40			
	Family Relations Growth							
2	My friends and family worry about me more					.78		
64	My friends and family have become more helpful					.74		
10	… become closer to my family					.66		
11	… experienced beneficial change in an important relationship					.42		
38	… kept in better contact with my family					.54		
45	… become more aware of the love and support available from other people					.42		
	Personal Growth							
60	… become more motivated to succeed							.64
12	… become more independent							.61
13	… learned to be more courageous							.59
61	… developed greater inner strength							.57
41	… learned to appreciate what I have							.47
58	… become motivated to get more out of life							.45
40	… learned to be more positive							.45
	Eigenvalue	13.34	2.36	2.11	1.83	1.70	1.60	1.50
	% of variance	31.03	5.50	4.90	4.25	3.95	3.72	3.49

Note. Only items meeting retention criteria are presented; blanks indicate loadings <.35.

Table 2

Correlations among the Time 1 BFiMSS Factors, Means (Standard Deviations) and Cronbach's Alphas for Times 1 and 2 BFIMSS Factors, Paired T-test Values and Retest Coefficients.

	Time 1 BFiMSS Factors (N=388)							Time 1 (*N=388*)		Time 2 (*N=285*)		Paired t-test	Retest r
Time 1 BFiMSS Factors	Compassion/ Empathy	Family Relations Growth	Mind-fulness	New Opportunities	Spiritual Growth	Life Style Gains	Personal Growth	*M (SD)*	α	*M (SD)*	α	values (*N=285*)	*(N=285)*
Compassion/Emp								2.20 (.50)	.88	2.13 (.49)	.87	2.63**	.63***
Family Relations Growth	.54**							2.11 (.50)	.83	2.00 (.50)	.84	4.21***	.64***
Mindfulness	.47**	.42**						2.14 (.48)	.76	2.14 (.48)	.78	0.41	.69***
New Opportunities	.62**	.55**	.47**					1.81 (.52)	.82	1.79 (.48)	.76	0.98	.67***
Spiritual Growth	.51**	.33**	.35**	.51**				1.68 (.69)	.92	1.62 (.65)	.90	2.13*	.76***
Life Style Gains	.54**	.38**	.49**	.51**	.42**			2.37 (.44)	.77	2.31 (.45)	.77	2.77**	.62***
Personal Growth	.62**	.48**	.51**	.67**	.52**	.54**		2.12 (.52)	.83	2.04 (.53)	.85	3.32***	.70***
BFiMSS Total	.81***	.69***	.69***	.82***	.73***	.72***	.82***	2.06 (.40)	.94	2.00 (.38)	.95	3.79***	.74***

Table 3

Partial Correlations between BFiMSS Factors and Meaningfulness, Carer Ratings of Care Recipient Benefit Finding and Positive Change and Time 1 Adjustment Outcomes, Controlling for Age, Religious Belief, Time Since Diagnosis, and Social Desirability.

BFiMSS Factors	Meaning-fullness (*N=265*)	Carer Rating of Care Recipient			Time 1 Adjustment			
		Time 1 Benefit Finding (*N=126*)	Time 2 Benefit Finding (*N=101*)	Time 1 Overall positive change (*N=119*)	Anxiety (*N=265*)	Depression (*N=265*)	Positive States of Mind (*N=265*)	Positive Affect (*N=265*)
Time 1								
Compassion/Empathy	.15*	.40***	.40***	.35***	.16*	-.04	.03	.24***
Family R. Growth	.12	.23**	.30***	.25***	.05	-.03	.07	.21***
Mindfulness	.13*	.34***	.35***	.30***	-.14*	-.17**	.15*	.23***
New Opportunities	.33***	.46***	.35***	.38***	.02	-.18**	.16**	.40***
Spiritual Growth	.22***	.39***	.39***	.24**	.02	-.12*	.08	.24***
Life Style Gains	.25***	.30***	.33***	.22*	-.04	-.10	.22*	.31***
Personal Growth	.34***	.49***	.47***	.43***	.05	-.17**	.28***	.40***
BFiMSS Total	.30***	.52***	.51***	.43***	.03	-.14*	.19**	.39***

*p<.05, **p<.01, ***p<.001

Table 4

Hierarchical Regression Analyses of the Effects of Benefit Finding on Time 2 Adjustment (N=270)

Predictors	Time 2 Depression				Time 2 Anxiety				Time 2 Positive Affect				Time 2 PSOM			
	b	se	β [c]	ΔR^2	b	se	β [c]	ΔR^2	*b*	se	β [c]	ΔR^2	b	se	β [c]	ΔR^2
Step 1				.43***				.39***				.34***				.29***
Time 1 Adjustment	.64	.05	.66**		.62	.05	.62***		.58	.05	.59***		.52	.05	.54***	
Step 2				.02				.03*				.01				.01
Covariates																
Age	.00	.02	.00		-.03	.02	-.10		-.02	.03	-.02		-.01	.02	-.02	
T1 Religious-spiritual [a]	.14	.36	.02		.43	.32	-.06		-.27	.68	-.02		-.42	.42	-.05	
Time since diagnosis	.00	.00	.05		.00	.00	.03		.00	.00	.00		.00	.00	.00	
T2 Social Desirability	-.19	.07	-.12*		-.17	.07	-.13**		.32	.13	.12*		.15	.07	.10	
Step 3				.03*				.04*				.04*				.04*
T1 BFiMSS Factors																
Compassion/Empathy	.38	.53	.05		.28	.47	.04		-.95	.95	-.07		-1.23	.61	-.15*	
Family R. Growth	-.11	.43	.01		.08	.39	.01		-1.21	.80	-.09		-.98	.51	-.12 [d]	
Mindfulness	.29	.48	.04		.32	.44	.05		-1.30	.88	-.09		-.24	.56	-.03	
New Opportunities	.22	.51	.03		.52	.45	.08		3.28	.94	.26***		1.22	.59	.16*	
Spiritual Growth	.05	.38	.01		-.54	.34	-.10		.34	.70	.04		.52	.45	.09	
Life Style Gains	-1.55	.52	-.18**		-1.45	.47	-.19**		.42	.95	.03		.67	.61	.07	
Personal Growth	-.75	.51	-.11		-.41	.46	-.06		.39	.96	.03		.75	62	.10	
Total R^2			.48				.45				.40				.35	
Total *F*			(12,258) = 19.87***				(12,258) = 17.79***				(12,258) = 14.22***				(12,258) = 14.50***	

Note. T1 = Time 1; T2 = Time 2. [a] Religious-spiritual belief yes = 1; no = 2 [b] Partial correlations controlling for Time 1 adjustment. [c] Standardised beta weight at entry. [d] $p \leq .07$, * $p<.05$, ** $p<.01$